

Think/Puzzle/Explore

Topic: Rate of change.

What do you know about rate of change?

- Slope
 - o What is a slope? $Y = m x + b$
 - m is slope, $m = (y_2 - y_1) / (x_2 - x_1)$
- Secant
 - o making contact with a curve at two points
- Tangent
 - o making contact with a curve at a single point

What questions do you have?

- How do I find the rate of change at a specific time?
 - o Finding the rate of change at one particular moment as opposed to the average.

What does the topic make you want to explore?

- Ways to find the rate of change at a particular moment.

Activity:

- Give the class a question and get them to explore the instantaneous rate of change.
 - o Given the distance vs. time graph that represents the movement of a car.
 - o You want to find the rate at which the car is traveling at a particular moment, say 5 seconds into the drive.
 - o Draw a rough tangent line at $t = 5$ and estimate the speed.

Purpose and Benefits

- Builds more thorough framework on prior knowledge; helps build connections with other concepts.
- Stimulates critical thinking; thought provoking.
- Gradually transitions students into a harder (more complex) topic.
- Builds student interest through hands on.
- Builds comfort and confidence in knowing that prior knowledge is relevant